

WHAT IS CLAIMED IS;

1. A discharge lamp lighting apparatus comprising:

a converter that switches power input thereto, converts the switching output to DC power and outputs the DC power;

5 an inverter that converts the DC power supplied from the converter to AC rectangular wave power and outputs the AC rectangular wave power; and

a controller that comprises:

first means for generating a power detection signal by
10 calculating power based upon a voltage detection signal and a current detection signal detected on the output side of the converter;

second means for outputting an output power command value to be used to control the DC power so as to achieve a target value;

third means for generating a correction signal to be used to
15 correct the output power command value in conformance to the power detection signal and outputting the correction signal in synchronization with a polarity inversion of the AC rectangular wave power;

fourth means for receiving the output power command value, the correction signal and the power detection signal and outputting a signal
20 corresponding to the error of the power detection signal relative to the output power command value having been corrected by the correction signal; and

fifth means for implementing pulse width control on the converter based upon the signal provided by the fourth means.

2. The discharge lamp lighting apparatus of claim 1, wherein:
the second means sets the current value of the DC power as a target
value and controls the current.

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3. The discharge lamp lighting apparatus of claim 1, wherein:
at least the first means and the third means in the controller are
constituted with a microcomputer.

10 4. The discharge lamp lighting apparatus of claim 3, wherein:
the third means controls the level of the correction signal in
conformance to the power detection signal.

15 5. The discharge lamp lighting apparatus of claim 3, wherein:
the third means controls the length of time over which the
correction signal is generated in conformance to the power detection signal.

20 6. The discharge lamp lighting apparatus of claim 3, wherein:
the microcomputer includes means for storing a plurality of
correction signal patterns; and
the third means selects a correction signal pattern among the
correction signal patterns in conformance to the power detection signal and
outputs the selected correction signal pattern.

7. A discharge lamp lighting apparatus comprising:

a converter that switches power input thereto, converts the switching output to DC power and outputs the DC power;

an inverter that converts the DC power supplied from the converter
5 to AC rectangular wave power and outputs the AC rectangular wave power; and

a controller that comprises:

a power calculation unit that generates a power detection
signal by calculating power based upon a voltage detection signal and a
10 current detection signal detected on the output side of the converter;

a control target value setting unit that outputs an output
power command value to be used to control the DC power so as to achieve
a target value;

a correction signal generation unit that generates a
15 correction signal to be used to correct the output power command value in
conformance to the power detection signal and outputs the correction signal
in synchronization with a polarity inversion of the AC rectangular wave
power;

a converter control signal generation unit that receives the
20 output power command value, the correction signal and the power
detection signal and outputs a signal corresponding to the error of the
power detection signal relative to the output power command value having
been corrected by the correction signal; and

a pulse width control unit that implements pulse width

control on the converter based upon the signal provided by the converter control signal generation unit.

8. The discharge lamp lighting apparatus of claim 7, wherein:

5 the control target value setting unit sets the current value of the DC power as a target value and controls the current.

9. The discharge lamp lighting apparatus of claim 7, wherein:

10 at least the power calculation unit and the correction signal generation unit in the controller are constituted with a microcomputer.

10. The discharge lamp lighting apparatus of claim 9, wherein:

15 the correction signal generation unit controls the level of the correction signal in conformance to the power detection signal.

11. The discharge lamp lighting apparatus of claim 9, wherein:

20 the correction signal generation unit controls the length of time over which the correction signal is generated in conformance to the power detection signal.

12. The discharge lamp lighting apparatus of claim 9, wherein:

the microcomputer includes memory in which a plurality of correction signal patterns are stored; and

the correction signal generation unit selects a correction signal

pattern among the correction signal patterns in conformance to the power detection signal and outputs the selected correction signal pattern.